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RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/776,910

DATE: 12/17/2001

TIME: 14:44:30

Input Set : N:\Crf3\RULE60\09776910.txt

Output Set: N:\CRF3\12172001\I776910.raw

3 <110> APPLICANT: Commonwealth Scientific and Industrial Rsrch. Org.

5 <120> TITLE OF INVENTION: MALATHION CARBOXYLESTERASE

7 <130> FILE REFERENCE: Attorney Docket No. 50179-051

9 <140> CURRENT APPLICATION NUMBER: 09/776,910

10 <141> CURRENT FILING DATE: 2001-02-06

12 <150> PRIOR APPLICATION NUMBER: 09/068,960

13 <151> PRIOR FILING DATE: 1998-06-20

15 <150> PRIOR APPLICATION NUMBER: PCT/AU96/00746

16 <151> PRIOR FILING DATE: 1996-11-22

18 <150> PRIOR APPLICATION NUMBER: AU 6751

19 <151> PRIOR FILING DATE: 1995-11-23

21 <160> NUMBER OF SEQ ID NOS: 43

23 <170> SOFTWARE: PatentIn Ver 2.0

25 <210> SEQ ID NO: 1

26 <211> LENGTH: 1713

27 <212> TYPE: DNA

28 <213> ORGANISM: Lucilia cuprina

30 <400> SEQUENCE: 1

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33 aaagtgaaag gcgttaaacg tttaactgtg tacgatgatt ctactacag ttttgagggt 180

34 ataccgtacg cccaaaccgc agtgggttag ctgagattt aagcacccca gcgaccaaca 240

35 ccctggatg gtgtgcgtga ttgttgcataat cataaagata agtcagtgcg agttgatttt 300

36 ataacgggc aagtgtgtgg ctcagaggat tgtctataacc taagtgtcta tacgaataat 360

37 ctaaatccccg aaactaaacg tcccgttttatacatac atgggtgtgg ttttatttate 420

38 ggtgaaaatc atcgtgatat gtatggcctt gattatttca ttaaaaagga tgggtgttg 480

39 attaacatac aatatcgttt gggagctcta gttttctaa gtttaaattt agaagacatt 540

40 aatgtgcccg gtaatgccgg cttaaagat caagtcatgg cttgcgttg gattaaaaat 600

41 aattgcgcga actttgggtgg caatcccgat aatattacag tctttgtga aagtgcgggt 660

42 gctgcctcta cccactacat gatgttaacc gaacaaactc gcggctttt ccacatgtgg 720

43 atactaatgt cgggtaatgc tatttgtcca ttggctataat cccatgtca acatgtgcc 780

44 ttacaccttag ccaaatttgcg cggtataag ggtgaggata atgataagga tgtttggaa 840

45 tttcttatga aagccaaagcc acaggatttataaaacttggg aggaaaaagt tttaactcta 900

46 gaagagcgta caaataaggt catgttccct tttggccca ctgttgcgc atatcagacc 960

47 gctgattgtg tcttacccaa acatctcggtt gaaatggta aactgcttggtaatttcg 1020

48 atacccacta tggatggtaa cacttcataat gagggtctat ttttacttc aattttaag 1080

49 caaatgccta tggatggtaa ggaattggaa acttgggtca attttgcgc aagtgaattt 1140

50 gctgatgttgc aacgcacccgc cccagagacc ttggaaatgg gtgctaaat taaaaaggct 1200

51 catgttacag gagaaacacc aacagctgtat aattttatgg atctttgcctc tcacatctat 1260

52 ttctgggtcc ccatgcatacg ttgttgcaat ttacgttca atcacaccc cggtaacaccc 1320

53 gtctacttgt atcgctcga ctgcgttgcg gaagatcttcaatccctat tcgttattatg 1380

54 cgttagtggac gtgggtttaa ggggtgttagt catgtgtatg aattaaccta tttcttctgg 1440

55 aatcaattgg ccaaacgtat gcctaaagaa tcgcgtgaat acaaacaat tgaacgtatg 1500

56 actggatataat ggatacaatt tggcaccact ggtatccctt atagcaatga aattgaaggt 1560

57 atggaaaatq ttccctggga tccaattaaat aatccgtatg aagtatacaa gtgttgaat 1620

58 attagtgtatg aattgaaaat gattgtgtg cctgaaatgg ataagattaa acaatgggag 1680

59 tcgatgtttq aaaaacatag agatttattt tag 1713

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61 <210> SEQ ID NO: 2
62 <211> LENGTH: 570
63 <212> TYPE: PRI
64 <213> ORGANISM: Lucilia cuprina
66 <400> SEQUENCE: 2
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68 1 5 10 15
70 Cys Ile Glu Asn Lys Phe Leu Asn Tyr Arg Leu Thr Thr Asn Glu Thr
71 20 25 30
73 Val Val Ala Glu Thr Glu Tyr Gly Lys Val Lys Gly Val Lys Arg Leu
74 35 40 45
76 Thr Val Tyr Asp Asp Ser Tyr Tyr Ser Phe Glu Gly Ile Pro Tyr Ala
77 50 55 60
79 Gln Pro Pro Val Gly Glu Leu Arg Phe Lys Ala Pro Gln Arg Pro Thr
80 65 70 75 80
82 Pro Trp Asp Gly Val Arg Asp Cys Cys Asn His Lys Asp Lys Ser Val
83 85 90 95
85 Gln Val Asp Phe Ile Thr Gly Lys Val Cys Gly Ser Glu Asp Cys Leu
86 100 105 110
88 Tyr Leu Ser Val Tyr Thr Asn Asn Leu Asn Pro Glu Thr Lys Arg Pro
89 115 120 125
91 Val Leu Val Tyr Ile His Gly Gly Phe Ile Ile Gly Glu Asn His
92 130 135 140
94 Arg Asp Met Tyr Gly Pro Asp Tyr Phe Ile Lys Lys Asp Val Val Leu
95 145 150 155 160
97 Ile Asn Ile Gln Tyr Arg Leu Gly Ala Leu Gly Phe Leu Ser Leu Asn
98 165 170 175
100 Ser Glu Asp Leu Asn Val Pro Gly Asn Ala Gly Leu Lys Asp Gln Val
101 180 185 190
103 Met Ala Leu Arg Trp Ile Lys Asn Asn Cys Ala Asn Phe Gly Gly Asn
104 195 200 205
106 Pro Asp Asn Ile Thr Val Phe Gly Glu Ser Ala Gly Ala Ala Ser Thr
107 210 215 220
109 His Tyr Met Met Leu Thr Glu Gln Thr Arg Gly Leu Phe His Arg Gly
110 225 230 235 240
112 Ile Leu Met Ser Gly Asn Ala Ile Cys Pro Leu Ala Asn Thr Gln Cys
113 245 250 255
115 Gln His Arg Ala Phe Thr Leu Ala Lys Leu Ala Gly Tyr Lys Gly Glu
116 260 265 270
118 Asp Asn Asp Lys Asp Val Leu Glu Phe Leu Met Lys Ala Lys Pro Gln
119 275 280 285
121 Asp Leu Ile Lys Leu Glu Glu Lys Val Leu Thr Leu Glu Glu Arg Thr
122 290 295 300
124 Asn Lys Val Met Phe Pro Phe Gly Pro Thr Val Glu Pro Tyr Gln Thr
125 305 310 315 320
127 Ala Asp Cys Val Leu Pro Lys His Pro Arg Glu Met Val Lys Thr Ala
128 325 330 335
130 Trp Gly Asn Ser Ile Pro Thr Met Met Gly Asn Thr Ser Tyr Glu Gly
131 340 345 350

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133 Leu Phe Phe Thr Ser Ile Leu Lys Gln Met Pro Met Leu Val Lys Glu
134           355          360          365
136 Leu Glu Thr Cys Val Asn Phe Val Pro Ser Glu Leu Ala Asp Ala Glu
137           370          375          380
139 Arg Thr Ala Pro Glu Thr Leu Glu Met Gly Ala Lys Ile Lys Lys Ala
140 385           390          395          400
142 His Val Thr Gly Glu Thr Pro Thr Ala Asp Asn Phe Met Asp Leu Cys
143           405          410          415
145 Ser His Ile Tyr Phe Trp Phe Pro Met His Arg Leu Leu Gln Leu Arg
146           420          425          430
148 Phe Asn His Thr Ser Gly Thr Pro Val Tyr Leu Tyr Arg Phe Asp Phe
149           435          440          445
151 Asp Ser Glu Asp Leu Ile Asn Pro Tyr Arg Ile Met Arg Ser Gly Arg
152           450          455          460
154 Gly Val Lys Gly Val Ser His Ala Asp Glu Leu Thr Tyr Phe Phe Trp
155 465           470          475          480
157 Asn Gln Leu Ala Lys Arg Met Pro Lys Glu Ser Arg Glu Tyr Lys Thr
158           485          490          495
160 Ile Glu Arg Met Thr Gly Ile Trp Ile Gln Phe Ala Thr Thr Gly Asn
161           500          505          510
163 Pro Tyr Ser Asn Glu Ile Glu Gly Met Glu Asn Val Ser Trp Asp Pro
164           515          520          525
166 Ile Lys Lys Ser Asp Glu Val Tyr Lys Cys Leu Asn Ile Ser Asp Glu
167           530          535          540
169 Leu Lys Met Ile Asp Val Pro Glu Met Asp Lys Ile Lys Gln Trp Glu
170 545           550          555          560
172 Ser Met Phe Glu Lys His Arg Asp Leu Phe
173           565          570
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177 <211> LENGTH: 1713
178 <212> TYPE: DNA
179 <213> ORGANISM: Lucilia cuprina
181 <400> SEQUENCE: 3
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184 aaagtgaaag gcgttaaacg tttaactgtg tacqatgatt cctactacag ttttgagggt 180
185 ataccgtacg cccaaaccgcc agtgggtgag ctgagattta aagcacccca gcgacccaaca 240
186 ccctggatg gtgtgcgcga ttgttgcaat cataaagata agtcagtgca agttgatttt 300
187 ataacggcga aagtgtgtgg ctcagaggat tgtctatacc taagtgtcta tacgaataat 360
188 ctaaatcccc aaactaaacg tcccgttta gtatacatac atgggtggg ttttattatc 420
189 ggtgaaaatc atcgtgatat gtatggctt gattattca ttaaaaagga tgtgtgttg 480
190 attaacatac aatatcgttt gggagctcta gggtttctaa gtttaaatc agaagacctt 540
191 aatgtgcccc gtaatgcggg ccttaaagat caagtcattgg ctttgcgttg gattaaaaat 600
192 aattgcgcga acttttgtgg caatcccgat aatattacag tcttttgtga aagtgcgggt 660
193 gctgcctcta cccactacat gatgttaacc gaaccaaactc gcgggtcttt ccacatcggt 720
194 atactaatgt cgggtaatgc tatttgtcca ttggctataa cccaatgtca acatcggtcc 780
195 ttcaccttag ccaaattggc cggctataag ggtgaggata atgataagga tggtttggaa 840
196 ttcttatga aagccaagcc acaggattta ataaaacttg aggaaaaagt tttaactcta 900
197 gaagagcgta caaataaggt catgtttcct ttggtccca ctgttgagcc atatcagacc 960

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198 getgattgtg tcttacccaa acatcctcg gaaatggtaa aaactgcttg gggtaattcg 1020
199 atacccacta tgatggtaa cacttcata gagggtctat ttttcacttc aattcttaag 1080
200 caaatgccta tgcttgtaa ggaattggaa acttgtgtca attttgcc aagtgaattg 1140
201 getgatgctg aacgcaccgc cccagagacc ttggaaatgg gtgctaaaat taaaaaggct 1200
202 catgttacag gagaaacacc aacagctgtat aattttatgg atctttgtctc tcacatctat 1260
203 ttctggttcc ccatgcacatcg tttgttgeaa ttacgttca atcacaccc cggtacaccc 1320
204 gtctacttgt atcgcttcga ctgcattcg gaagatctta tcaatcccta tcgtattatg 1380
205 cgttagtggac gtgggtttaa ggggtttagt catgtgtat aattaaccta tttttctgg 1440
206 aatcaattgg ccaaacgtat gcctaaagaa tcgcgtgaat acaaaaacaat tgaacgtatg 1500
207 actggatataat ggatacataatt tgcaccact ggtatccctt atagcaatga aattgaaggt 1560
208 atggaaaatg ttcctggaa tccaattaaagaaatccgatg aagtatacaa gtgttgaat 1620
209 attaqtgtatg aattgaaaat gattgtatg gctgaaatgg ataagattaa acaatggag 1680
210 tgcgttgc aaaaacatag agatttattt tag 1713
212 <210> SEQ ID NO: 4
213 <211> LENGTH: 570
214 <212> TYPE: PRT
215 <213> ORGANISM: Lucilia cuprina
217 <400> SEQUENCE: 4
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222           20           25           30
224 Val Val Ala Glu Thr Glu Tyr Gly Lys Val Lys Gly Val Lys Arg Leu
225           35           40           45
227 Thr Val Tyr Asp Asp Ser Tyr Tyr Ser Phe Glu Gly Ile Pro Tyr Ala
228           50           55           60
230 Gln Pro Pro Val Gly Glu Leu Arg Phe Lys Ala Pro Gln Arg Pro Thr
231       65           70           75           80
233 Pro Trp Asp Gly Val Arg Asp Cys Cys Asn His Lys Asp Lys Ser Val
234           85           90           95
236 Gln Val Asp Phe Ile Thr Gly Lys Val Cys Gly Ser Glu Asp Cys Leu
237           100          105          110
239 Tyr Leu Ser Val Tyr Thr Asn Asn Leu Asn Pro Glu Thr Lys Arg Pro
240           115          120          125
242 Val Leu Val Tyr Ile His Gly Gly Phe Ile Ile Gly Glu Asn His
243           130          135          140
245 Arg Asp Met Tyr Gly Pro Asp Tyr Phe Ile Lys Lys Asp Val Val Leu
246   145          150          155          160
248 Ile Asn Ile Gln Tyr Arg Leu Gly Ala Leu Gly Phe Leu Ser Leu Asn
249           165          170          175
251 Ser Glu Asp Leu Asn Val Pro Gly Asn Ala Gly Leu Lys Asp Gln Val
252           180          185          190
254 Met Ala Leu Arg Trp Ile Lys Asn Asn Cys Ala Asn Phe Gly Gly Asn
255           195          200          205
257 Pro Asp Asn Ile Thr Val Phe Gly Glu Ser Ala Gly Ala Ala Ser Thr
258           210          215          220
260 His Tyr Met Met Leu Thr Glu Gln Thr Arg Gly Leu Phe His Arg Gly
261   225          230          235          240
263 Ile Leu Met Ser Gly Asn Ala Ile Cys Pro Leu Ala Asn Thr Gln Cys

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264	245	250	255
266	Gln His Arg Ala Phe Thr Leu Ala Lys Leu Ala Gly Tyr Lys Gly Glu		
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269	Asp Asn Asp Lys Asp Val Leu Glu Phe Leu Met Lys Ala Lys Pro Gln		
270	275	280	285
272	Asp Leu Ile Lys Leu Glu Glu Lys Val Leu Thr Leu Glu Glu Arg Thr		
273	290	295	300
275	Asn Lys Val Met Phe Pro Phe Gly Pro Thr Val Glu Pro Tyr Gln Thr		
276	305	310	315
278	320		
279	Ala Asp Cys Val Leu Pro Lys His Pro Arg Glu Met Val Lys Thr Ala		
281	325	330	335
282	Trp Gly Asn Ser Ile Pro Thr Met Met Gly Asn Thr Ser Tyr Glu Gly		
284	340	345	350
285	Leu Phe Phe Thr Ser Ile Leu Lys Gln Met Pro Met Leu Val Lys Glu		
287	355	360	365
288	Leu Glu Thr Cys Val Asn Phe Val Pro Ser Glu Leu Ala Asp Ala Glu		
290	370	375	380
291	Arg Thr Ala Pro Glu Thr Leu Glu Met Gly Ala Lys Ile Lys Lys Ala		
292	385	390	395
293	400		
294	His Val Thr Gly Glu Thr Pro Thr Ala Asp Asn Phe Met Asp Leu Cys		
296	405	410	415
297	Ser His Ile Tyr Phe Trp Phe Pro Met His Arg Leu Leu Gln Leu Arg		
299	420	425	430
300	Phe Asn His Thr Ser Gly Thr Pro Val Tyr Leu Tyr Arg Phe Asp Phe		
302	435	440	445
303	Asp Ser Glu Asp Leu Ile Asn Pro Tyr Arg Ile Met Arg Ser Gly Arg		
305	450	455	460
306	Gly Val Lys Gly Val Ser His Ala Asp Glu Leu Thr Tyr Phe Phe Trp		
307	465	470	475
308	480		
309	Asn Gln Leu Ala Lys Arg Met Pro Lys Glu Ser Arg Glu Tyr Lys Thr		
311	485	490	495
312	Ile Glu Arg Met Thr Gly Ile Trp Ile Gln Phe Ala Thr Thr Gly Asn		
314	500	505	510
315	Pro Tyr Ser Asn Glu Ile Glu Gly Met Glu Asn Val Ser Trp Asp Pro		
317	515	520	525
318	Ile Lys Lys Ser Asp Glu Val Tyr Lys Cys Leu Asn Ile Ser Asp Glu		
320	530	535	540
321	Leu Lys Met Ile Asp Val Pro Glu Met Asp Lys Ile Lys Gln Trp Glu		
323	545	550	555
324	Ser Met Phe Glu Lys His Arg Asp Leu Phe		
327	565	570	
328	<210> SEQ ID NO: 5		
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330	<212> TYPE: DNA		
331	<213> ORGANISM: Lucilia cuprina		
332	<400> SEQUENCE: 5		
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334	aagttttaa actatcgttt aactaccaa taaaacggtgg tagctgaaac tgaatatggc 120		
335	aaagtgaaag gcgttaaacg tttaactgtg tacatgatt cctactacag ttttgagggt 180		

VERIFICATION SUMMARY

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Input Set : N:\Crf3\RULE60\09776910.txt
Output Set: N:\CRF3\12172001\I776910.raw

L:1145 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30

L:1182 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:31